

Name Key

Date \_\_\_\_\_

### Arithmetic Review

Write the first four terms of the arithmetic sequence.

1.  $a_1 = 23, d = 7$  23, 30, 37, 44
2.  $a_1 = 11, d = -5$  11, 6, 1, -4
3.  $a_1 = -8, d = -3$  -8, -11, -14, -17
4.  $a_1 = 4, d = 2.6$  4, 6.6, 9.2, 11.8

Find the specified term of the arithmetic sequence.

5.  $a_{26} = 112$  of 12, 16, 20, ...
6.  $a_{21} = -111$  of 9, 3, -3, ...
7.  $a_{31} = .3$  of 9.3, 9, 8.7, ...
8.  $a_{36} = 41$  of -8, -6.6, -5.2, ...
9.  $a_{83} = 47$  of 6, 6.5, 7, ...

Find the indicated number of means between each pair of numbers.

10. 21, 28 two, between 14 and 35.
11. 33, 26, 19 three, between 40 and 12.
12. 8.5, 8, 7.5 three, between 9 and 7.
13. 9.6, 11.2, 12.8, 14.4 four, between 8 and 16.
14. 5, 4, 3, 2, 1 four, between -3 and 14.5.
15. 18.5, 13.6, 8.7, 3.8, -1.1 five, between 24 and -7.2.
16. 59 one, between 36 and 82.

$$14, 21, 28, 35$$

$$35 = 14 + (4-1)d$$

$$21 = 3d$$

$$7 = d$$

~~scribbles~~

Write in expanded form.

17.  $\sum_{x=1}^5 (x+2) = 3+4+5+6+7$
18.  $\sum_{j=3}^8 (2j-5) = 1+3+5+7+9+11$

Write in sigma notation.

19.  $5+8+11+\dots+77$   $\sum_{n=1}^{25} (3n+2)$
20.  $-9-13-17-\dots-205$   $\sum_{n=1}^{32} (-4n-5)$

$$19 \quad a_n = 5 + (n-1)3$$

$$3n+2$$

$$77 = 3n+2$$

$$25 = n$$

$$20 \quad a_n = -9 + (n-1)(-4)$$

$$-5-4n$$

$$-205 = -5-4n$$

$$-200 = -4n$$

$$50 = n$$

Find the indicated variable.

21.  $n = 30, a_1 = 1, a_{30} = 134$ .  $S_{30} = 2025$
22.  $n = 44, a_1 = -2.5, a_{44} = -56.7$ .  $S_{44} = -1302.4$
23.  $n = 40; 6+11+16+21+\dots$   $S_{40} = 4140$
24.  $n = 55; a_1 = 6.7, S_{55} = 814$ ,  $d = 1.3$

$$23 \quad S_n = \frac{n}{2} [2a_1 + (n-1)d]$$

$$814 = \frac{55}{2} (13.4 + 54d)$$

$$814 = 368.5 + 1485d$$

$$d = .3$$

Word problems

25. Some cartons are stacked with 4 in the top row, 7 in the 2<sup>nd</sup> row, 10 in the 3<sup>rd</sup> row, and so on. How many cartons are in the 16<sup>th</sup> row? Find the total number of cartons in the stack.

26. A parachutist in a free fall travels 5m in the 1<sup>st</sup> second, 15m in the 2<sup>nd</sup> second, 25m in the 3<sup>rd</sup> second, and so on. How far will he travel in the 9<sup>th</sup> second? How far did he travel after 9 seconds of free fall?

27. In the month of June, Kevin saved 1 quarter the first day, 2 quarters the second day, 3 quarters the third day, and so on. How much money did he save in June?

$$27 \quad a_1 = .25 \quad S_{30} = \frac{30}{2} (2(.25) + 29(.25))$$

$$d = .25$$

$$26 \quad a_1 = 5$$

$$a_2 = 15$$

$$a_3 = 25$$

$$d = 10$$

$$a_1 = 5 + 8(10)$$

$$85$$

$$S_9 = \frac{9}{2} (5 + 85)$$

$$90$$

$$\frac{30}{2} (1+134)$$

$$\frac{44}{2} (-2.5 + -56.7)$$

$$a_1 = 49 \quad S_{16} = 424$$

$$S_9 = 405m \quad a_9 = 85m$$

$$\$116.25$$